

What is claimed is:

1. A method of driving a plasma display panel having a plurality of first electrodes, a plurality of second electrodes adjacently disposed alternately, and a  
5 plurality of third electrodes formed to cross said first and second electrodes, comprising the steps of:

carrying out an address discharge between said second electrodes and said third electrodes;

10 carrying out an auxiliary discharge to decrease the volume of wall charges, accumulated on a display cell in which a sustain discharge is not intended, to a level which cannot generate a sustain discharge; and

15 carrying out a sustain discharge by alternately applying sustain pulses to said first and second electrodes.

2. The method of driving the plasma display panel as claimed in claim 1, further comprising the steps of:

20 generating a discharge in a selected cell by applying a voltage pulse, with the third electrodes set to have a first polarity and the second electrodes set to have a second polarity;

25 carrying out an address discharge to form wall charges of a first polarity on at least said second electrodes, with the first electrodes set to have a first polarity with respect to said second electrodes, and also to form wall charges of a second polarity on the first electrodes; and

30 applying a voltage pulse to said first or third electrodes or to both electrodes so as to set the third electrodes to have a first polarity and to set the first electrodes to have a second polarity, thereby to generate a discharge in a discharge cell that starts a discharge without application, to this cell, a voltage  
35 pulse that brings about an address discharge through said third electrodes.

3. The method of driving the plasma display panel

as claimed in claim 1, wherein a voltage to be applied to said third electrodes when carrying out the auxiliary discharge is equivalent to a voltage of an address pulse for carrying out an address discharge.

5           4.    The method of driving the plasma display panel as claimed in claim 1, wherein a voltage to be applied to said second electrodes when carrying out the auxiliary discharge is a voltage which decreases a potential difference between the voltage applied to said second  
10   electrodes and a voltage of an additional pulse to be applied to said first electrodes.

          5.    The method of driving the plasma display panel as claimed in claim 4, wherein the voltage to be applied to said second electrodes when carrying out the auxiliary  
15   discharge is equivalent to a voltage of a non-selected electrode of said second electrodes during an address period.

          6.    The method of driving the plasma display panel as claimed in claim 1, wherein said first electrodes and  
20   said second electrodes are disposed, in parallel, alternately and said third electrodes are orthogonal with said first and second electrodes.

          7.    The method of driving the plasma display panel as claimed in claim 1, further comprising the steps of:  
25                applying a voltage pulse, having the same polarity as a voltage pulse for carrying out the address discharge, between said second electrodes and said third electrodes; and

              carrying out a further auxiliary discharge  
30   to decrease the volume of wall charges, accumulated on a display cell in which a sustain discharge is not intended, without carrying out the address discharge.

          8.    The method of driving the plasma display panel as claimed in claim 7, further comprising the steps of:  
35                applying a voltage pulse, having the same polarity as a voltage pulse for carrying out the address discharge between said first electrodes and said second

electrodes and having a voltage waveform that finally becomes more than the voltage between said first electrodes and said second electrodes in the time of addressing; and

5 carrying out a further auxiliary discharge to decrease the volume of wall charges, accumulated on a display cell in which a sustain discharge is not intended, without carrying out the address discharge.

10 9. The method of driving the plasma display panel as claimed in claim 8, wherein the voltage waveform applied between said first electrodes and said second electrodes when carrying out the further auxiliary discharge is a voltage waveform having a less steep inclination.

15 10. The method of driving the plasma display panel as claimed in claim 1, wherein said second electrodes are oppositely driven into an odd electrode group and an even electrode group in temporal and, after finishing an address period of one of said odd and even electrode groups, further comprising the steps of:

20 applying a voltage pulse, having the same polarity as a voltage pulse for carrying out the address discharge on said second electrodes and having the same or a higher voltage than that of a scan pulse; and

25 carrying out a further auxiliary discharge to decrease the volume of wall charges, accumulated on a display cell in which a sustain discharge is not intended, without carrying out the address discharge.

30 11. The method of driving the plasma display panel as claimed in claim 10, wherein the voltage applied between said second electrodes and said first electrodes constituting a display line when carrying out the further auxiliary discharge is equivalent to a voltage applied to said second electrodes for carrying out the auxiliary discharge.

35 12. A method of driving a plasma display panel having a plurality of first electrodes, a plurality of

second electrodes disposed adjacently and alternately, and a plurality of third electrodes formed to cross said first and second electrodes, wherein:

5           said second electrodes are oppositely driven into an odd electrode group and an even electrode group in temporal; and

          after finishing an address period of one of said odd and even electrode groups, a voltage of any of said second electrodes finishing an address process is  
10       set lower than a non-selection voltage of said second electrode when carrying out the address process.

13. A method of driving a plasma display panel having a plurality of first electrodes, a plurality of second electrodes adjacently disposed alternately, and a  
15       plurality of third electrodes formed to cross said first and second electrodes, wherein:

          said first electrodes and said second electrodes are divided into an odd electrode group and an even electrode group, and each adjacent odd electrode of  
20       said odd electrode group and each adjacent even electrode of said even electrode group or each adjacent odd and even electrode constitutes a display line;

          a plurality of discharges of an initial stage of a sustain discharge period are oppositely  
25       carried out by each adjacent odd electrode or each adjacent even electrode; and

          one or both voltages of said first electrodes and said second electrodes, where the sustain discharge is not carried out, are set low.

30       14. The method of driving the plasma display panel as claimed in claim 13, wherein a voltage applied to an electrode not carrying out a discharge is set low by bringing a driving circuit for said electrode into a high impedance state.

35       15. A method of driving a plasma display panel having a plurality of first electrodes, a plurality of second electrodes disposed adjacently and alternately,

and a plurality of third electrodes formed to cross said first and second electrodes, comprising the steps of:

carrying out an address discharge between said second electrodes and said third electrodes;

5 carrying out a sustain discharge by alternately applying sustain pulses to said first and second electrodes; and

carrying out an auxiliary discharge on a scale larger than the scale of the sustain discharge  
10 carried out immediately before.

16. The method of driving the plasma display panel as claimed in claim 15, further comprising the steps of:

generating a discharge in a selected cell by applying a voltage pulse, with the third electrodes  
15 set to have a first polarity and the second electrodes set to have a second polarity;

forming wall charges of a first polarity on at least said second electrodes, with the first electrodes set to have a first polarity with respect to  
20 said second electrodes, and also forming wall charges of a second polarity on the first electrodes; and

applying a voltage pulse to said third or second electrodes or to both electrodes so as to set the third electrodes to have a first polarity and to set the  
25 second electrodes to have a second polarity.

17. The method of driving the plasma display panel as claimed in claim 15, wherein a voltage to be applied to said third electrodes when carrying out the auxiliary  
30 discharge is equivalent to a voltage of a voltage pulse to be applied to said third electrodes in order to execute an address discharge during an address period.

18. The method of driving the plasma display panel as claimed in claim 15, wherein a voltage to be applied to said third electrodes when carrying out the auxiliary  
35 discharge has a polarity opposite to the polarity of the potentials of said second and third electrodes during a sustain discharge period.

19. The method of driving the plasma display panel as claimed in claim 15, wherein a voltage to be applied to said second electrodes when carrying out the auxiliary discharge is equivalent to a voltage selectively applied to said second electrodes at the time of carrying out an address discharge.

20. The method of driving the plasma display panel as claimed in claim 15, wherein a voltage to be applied to said first electrodes when carrying out the auxiliary discharge is a voltage having a polarity opposite to the polarity of said second electrodes.

21. The method of driving the plasma display panel as claimed in claim 20, wherein the voltage to be applied to said first electrodes when carrying out the auxiliary discharge is equivalent to a voltage to be applied to said first electrodes at the time of carrying out an address discharge.

22. The method of driving the plasma display panel as claimed in claim 15, wherein the auxiliary discharge is carried out once in a plurality of sub-fields.

23. The method of driving the plasma display panel as claimed in claim 22, wherein the auxiliary discharge is carried out once in one frame or once in one field.

24. The method of driving the plasma display panel as claimed in claim 15, wherein said first electrodes and said second electrodes are disposed alternately and in parallel, and said third electrodes are orthogonal to said first and second electrodes.

25. A method of driving a plasma display panel having a plurality of first electrodes, a plurality of second electrodes disposed adjacently and alternately, and a plurality of third electrodes formed to cross said first and second electrodes, for applying at a reset timing an erasing pulse having a less steep inclination with respect to said second electrodes to which a scan pulse is applied, comprising the step of:

rapidly changing a pulse voltage until the

pulse voltage becomes equivalent to a voltage of the scan pulse, at an end stage of the erasing pulse.

5 26. The method of driving the plasma display panel as claimed in claim 25, wherein said first electrodes and said second electrodes are alternately disposed in parallel, and said third electrodes are orthogonal with said first and second electrodes.

10 27. A method of driving a plasma display panel having a plurality of first electrodes, a plurality of second electrodes disposed adjacently and alternately, and a plurality of third electrodes formed to cross said first and second electrodes, comprising the steps of:

15 carrying out an address discharge between said second electrodes and said third electrodes; and carrying out a sustain discharge by alternately applying sustain pulses to said first and second electrodes, wherein an auxiliary discharge is carried out, between said first electrodes and said third electrodes, during the address discharge and the sustain discharge.  
20

28. A plasma display panel comprising:  
a plurality of first electrodes;  
a plurality of second electrodes disposed adjacently and alternately to said first electrodes;  
25 a plurality of third electrodes formed to cross said first and second electrodes; and  
a control circuit for carrying out an address discharge between said second electrodes and the third electrodes, wherein said control circuit carries  
30 out a sustain discharge to decrease the volume of wall charges, accumulated on a display cell in which a sustain discharge is not intended, to a level which cannot generate a sustain discharge.

35 29. The plasma display panel as claimed in claim 28, wherein said first electrodes and said second electrodes are disposed alternately in parallel, and said third electrodes are orthogonal with said first and

second electrodes.

30. A plasma display panel comprising:

a plurality of first electrodes;

5 a plurality of second electrodes disposed  
adjacently and alternately to said first electrodes;

a plurality of third electrodes formed to  
cross said first and second electrodes; and

10 a control circuit for carrying out an  
address discharge between said second electrodes and said  
third electrodes, wherein said control circuit carries  
out an auxiliary discharge on a scale larger than the  
scale of a sustain discharge carried out immediately  
before.

15 31. The plasma display panel as claimed in claim  
30, wherein said first electrodes and said second  
electrodes are disposed alternately in parallel, and said  
third electrodes are orthogonal with said first and  
second electrodes.